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# **2003 Waste Tire Management Program Report**

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## **Executive Summary**

### Introduction

In 1991, as directed by the state legislature, the Indiana Department of Environmental Management established a Waste Tire Task Force to address the problem of increased illegal scrap tire stockpiles. Issues identified included the need to better manage used tires through regulations, proactive outreach to waste tire businesses, and developing markets for scrap tire reuse. The Task Force's report was submitted to the Indiana General Assembly and the governor. The members' recommendations led to the creation of the Waste Tire Management Program.

To support the program, a Waste Tire Management Fund was created from a tire fee charged by retailers on the sale of new tires and new vehicles. The fee was split between IDEM (for remediation and removal of improperly disposed of tires) and the Indiana Department of Commerce (for the development of loans and grants).

Since the creation of the program, Indiana has been successful in remediating many scrap tire dumps and abandoned tire piles and granting monies for market research. However, with the number of waste tire material generated annually, these current efforts may not be enough.

IDEM's 2003 Waste Tire Management Program Report examines in detail how the Waste Tire Management Program has evolved, including state funding mechanisms, state programs involved, and the future challenges Indiana faces with scrap tires.

### Report Highlights

More than 280 million scrap tires are generated in the United States each year, with approximately 6 million generated in Indiana. IDEM estimates that another 6.5 million additional scrap tires are stockpiled at processing facilities. Scrap tire stockpiles present hazards to human health and the environment, including posing threat of fires and providing mosquito breeding grounds through accumulating stagnant water.

IDEM has the responsibility of regulating waste tires. Through the framework of the Waste Tire Management Program, the department oversees waste tire compliance issues for businesses, cleanups of existing stock piles, and prevention of further illegal dumping.

Through state rules and statutes, IDEM set forth a regulatory structure for waste tire haulers, storage facilities, and processing facilities. These businesses must register with IDEM and keep track of tires as they move from generator to final end use. Storage accumulations are set with IDEM and the Indiana State Fire Marshall to prevent large accumulations of waste tires.

During the last five years, IDEM cleaned up more than 5 million illegally disposed of tires and prioritized 29 tire dumps for remediation. IDEM used the Waste Tire

Management Fund for the bulk of these cleanup efforts, including 3,785,520 passenger tire equivalents at the G&M site in the city of Atwood, Kosciusko County.

The Indiana Department of Commerce offers grants and loans to stimulate market interest, allotting monies for machinery, research and beneficial reuse initiatives regarding waste tires. IDEM also provides outreach in conjunction with IDOC on scrap tire market development. As part of this effort, IDEM and IDOC recently offered scrap tire grants. In general, the majority of Indiana scrap tires are collected for processing, and less than 25 percent of these tires are reused.

### Next Steps

Since 1992, there have been significant improvements to Indiana's management of waste tires. Indiana also has been successful in remediating many scrap tire dumps and abandoned scrap tire piles. IDEM continues to evaluate existing approaches, legal authorities, and compliance and outreach efforts to properly manage waste tires. IDEM's current efforts to ensure compliance at waste tire processing facilities may make a significant difference in waste tire management and will be evaluated after this coming year. Right now, Indiana does not have enough recycling or reuse markets and there are significant concerns with growing volumes of waste tires and shredded tires. Increased funding for cleanups and market development may be needed, as well as revisions to current state statutes and rules. Additionally, IDEM may need to increase outreach efforts to educate retailers and waste tire businesses of mandated compliance requirements to prevent additional stockpiling. Lastly, IDEM will work more closely with other state agencies in a coordinated effort to increase information about problems with scrap tires and the availability of grants and loans for viable reuse and recycling.

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## I. Overview

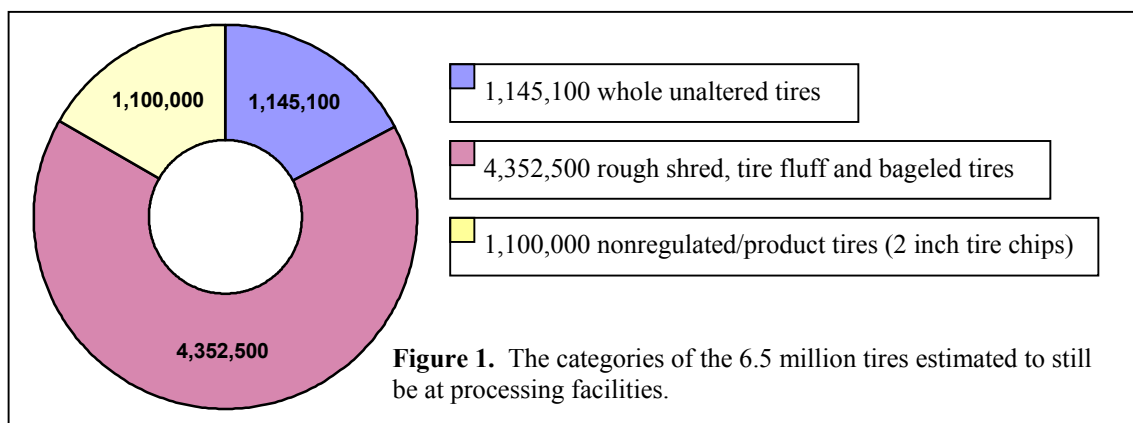
In order to address the problem of stockpiled scrap tires and continued scrap tire generation, the Indiana Department of Environmental Management established the Waste Tire Task Force in 1991, as directed by the Indiana General Assembly. At that time, the task force estimated the number of scrap tires being generated in Indiana each year at between 4 million and 5 million. In addition, there were an estimated 10 million to 12 million tires contained in stockpiles and other open dumps in Indiana.

The task force identified many issues regarding waste tire management, including how to decrease illegal stockpiling and dumping of tires, how to remediate these tires if improperly disposed of, and how to educate the public and retailers about better management of used tires. One major result was the creation of the Waste Tire Management Program.

This report will focus on the status of the Waste Tire Management Program, the Waste Tire Management Fund, programs which the fund supports, IDEM's regulatory management of waste tires, compliance issues for businesses, and further challenges which the state of Indiana faces regarding waste tires.

### Why Waste Tires are a Problem

Currently, more than 280 million scrap tires – about one scrap tire per person – are generated in the United States each year.<sup>1</sup> That means approximately 6 million scrap tires per year are generated in Indiana.<sup>2</sup> Although approximately 5 million tires from Indiana's scrap tire stockpiles have been cleaned up, IDEM estimates through routine compliance surveys that 5 million to 7 million additional tires remain in illegal disposal in Indiana. More than 6.5 million additional scrap tires are estimated to be stockpiled at registered processing facilities throughout Indiana, awaiting an end use or disposal (see Figure 1.)



<sup>1</sup> Source: Rubber Manufacturers Association Web site: [www.rma.org/scrap\\_tires/scrap\\_tire\\_markets/facts\\_and\\_figures/](http://www.rma.org/scrap_tires/scrap_tire_markets/facts_and_figures/).

<sup>2</sup> Source: Indiana Department of Commerce Web site: [www.IN.gov/doc/compare/population.html](http://www.IN.gov/doc/compare/population.html).

Scrap tire stockpiles present hazards to human health and the environment. Tires stored in the open quickly accumulate rainwater, providing stagnant water for mosquito breeding. The water in one scrap tire can accommodate thousands of mosquito larvae. Mosquitoes can transmit a number of diseases to humans, including the West Nile Virus. Other pests such as rats are attracted to tire piles by the water and shelter they provide.

Tire stockpiles also pose the threat of fires which are extremely difficult to extinguish and produce large amounts of pollution. The U.S. Environmental Protection Agency's 1997 report, "Air Emissions from Scrap Tire Combustion," states that emissions from an open tire fire contain pollutants that can cause significant short-term and long-term health effects in firefighters and nearby residents. According to U.S. EPA, open tire fires emit "criteria" pollutants, including particulates, carbon monoxide, sulfur oxides, oxides of nitrogen, and volatile organic compounds; hazardous air pollutants, including dioxins, furans, hydrogen chloride, benzene, polychlorinated biphenyls, and polynuclear aromatic hydrocarbons; and metals, including arsenic, cadmium, lead, zinc, mercury, chromium, and vanadium. Health effects from exposure to these pollutants could include eye, skin, and mucous membrane irritation; respiratory effects; central nervous system effects; and cancer. Crude oil is also produced from burning tires, and it can contaminate ground and surface waters.

#### Current Indiana Legislation Addressing Waste Tires

Indiana Code 13-20-13 and waste tire management rule 329 IAC 15 set forth regulations for the collection, storage, transportation, processing, and disposal of waste tires in Indiana. IDEM issues registrations for waste tire haulers, storage facilities and processing facilities. Whole waste tires are prohibited from landfills, although shredded or ground tires may be used as daily cover. Those tires shredded or grounded and used as a cover for landfills are exempted from state solid waste management fees and solid waste management district final disposal fees, pursuant to IC 13-20-22-1 and IC 13-21-13-1, respectively, although individual landfills charge a disposal fee. Tires must be stored and processed in a way that does not endanger human health or the environment. Collected tires must be drained immediately and stored in a way that prevents the accumulation of water in them. IDEM is authorized by 329 IAC 15-1-2 to enforce the waste tire management rule, and by IC 13-20-14-7 to enforce scrap tire removal and remediation.

The next two sections of the waste tire report are dedicated to the statutory progression of laws regarding waste tire management, including the establishment of the Waste Tire Management Program, the Waste Tire Management Fund, and the Waste Tire Management Fee.

## II. Statutory History

To address the need for better waste tire management in the state, the Indiana legislature enacted the Waste Tire Management Fund, maintained through a tire fee. The following is a brief time line of the history of the fund. A more detailed narrative of amendments to the tire fund is located in Appendix 1.

<b>1990</b>	<ul style="list-style-type: none"><li>*Chapter on waste tires added to Indiana Code.</li><li>*Waste Tire Management Fund established.</li></ul>
<b>1991</b>	Two sources of income added to WTMF: \$25 transporter registration fee; \$100 tire cutting facility permit fee.
<b>1992</b>	<ul style="list-style-type: none"><li>*Technical corrections made.</li><li>*Permit changed to registration for tire storage.</li></ul>
<b>1993</b>	<ul style="list-style-type: none"><li>*More changes to Fund money sources: 25 cents added to each new tire sale; 50-50% split between IDEM and IDOC.</li><li>*Whole waste tires banned from landfills.</li></ul>
<b>1994</b>	Distribution of fund changes: 35% to IDEM for remediation and education; 65% to IDOC for waste tire management program development, grants and loans.
<b>1995</b>	Costs and damages from waste tire cleanup projects may be used by IDEM for remediation.
<b>1996</b>	Recodifications.
<b>1997</b>	<ul style="list-style-type: none"><li>*No significant changes to fees.</li><li>*Whole tires banned from landfills.</li></ul>
<b>1998</b>	<ul style="list-style-type: none"><li>*Indoor waste tire storage sites and processing operations required to pay registration fee.</li><li>*Alternate Daily Cover exempted from solid waste fees.</li></ul>
<b>1999</b>	Technical corrections made. IDEM to receive 100% of funding from WTMF.
<b>2000-2003</b>	No amendments made.

### III. Waste Tire Management Fund

In 1991, IDEM established the Waste Tire Task Force to address the problem of stockpiled scrap tires and scrap tire operations, as directed by the Indiana General Assembly. The purpose of the WTTF was to develop a plan for scrap tire management and market development, and to submit that plan to the governor and legislature. The task force's final report contained recommendations for the creation of a waste tire management program. (Results of this report may be viewed in Appendix 2.)

Subsequently, the Waste Tire Management Fund was established by IC 13-20-13-8 to support the program. Funding comes from a 25 cents per tire fee charged on the sale of new tires and new vehicles (IC 13-20-13-7). The fee is collected by the retailer and is remitted to the state. The Waste Tire Management Fund can be used for the remediation and removal of improperly disposed waste tires and for grants for waste tire market development activities. Historically, the funding was split between IDEM (for removal and remediation projects) and the Indiana Department of Commerce (for market development loans and grants.) *(Note: In 1999, a technical correction to statutes stipulated that 100 percent of the monies would go to IDEM for cleanups, waste reduction and recycling. In fiscal year 2002, the State Board of Finance transferred \$3.5 million [27 percent] from the balance of the WTMF to the State General Fund.)*<sup>3</sup>

#### Current Provisions of the Waste Tire Management Fund

Before 1999, under IC 13-20-8, the Waste Tire Management Fund was established for the following purposes:

35 percent of the money deposited in the fund assists IDEM in:	65 percent of the money deposited in the fund assists IDOC in:
<ul style="list-style-type: none"><li>• removal and disposal of waste tires;</li></ul>	<ul style="list-style-type: none"><li>• providing grants and loans; and</li></ul>
<ul style="list-style-type: none"><li>• operating the waste tire education program; and</li></ul>	<ul style="list-style-type: none"><li>• paying the expenses of administering the grant and loan programs.</li></ul>
<ul style="list-style-type: none"><li>• paying the expenses of administering the education programs.</li></ul>	

In addition, under IC 13-20-13-9, the fund was utilized for:

IDEM—providing funds for:	IDOC—providing grants and loans for:
<ul style="list-style-type: none"><li>• managing waste tires;</li></ul>	<ul style="list-style-type: none"><li>• establishing or operating programs for recycling or reuse of waste tires;</li></ul>
<ul style="list-style-type: none"><li>• performing surveillance and enforcement activities used to implement proper waste tire</li></ul>	<ul style="list-style-type: none"><li>• establishing or operating programs using waste tires as a source of fuel; and</li></ul>

<sup>3</sup> In Fiscal Year 2002, the Indiana State Board of Finance authorized the transfer of \$3.5 million from the Waste Tire Fund to the State General Fund. In Fiscal Year 2002, \$3,397,000 was transferred, and the remaining \$103,000 was transferred in 2003.



management; and	
<ul style="list-style-type: none"> <li>conducting the waste tire education program.</li> </ul>	<ul style="list-style-type: none"> <li>developing markets for waste tires and products containing recycled or reused waste tires.</li> </ul>

Sources of money for the Waste Tire Management Fund are:

- A \$500 waste tire storage site registration fee, a \$200 processing site registration fee, and a \$25 waste tire transporter registration fee.
- A 25 cent new tire fee. (Since 1999, all money deposited in the fund from this fee may be used by IDEM for waste reduction, recycling, removal or remediation projects.)
- Costs and damages recovered. All money deposited in the fund from cost recovery may be used by IDEM for removal and remediation projects.
- Fees established by the general assembly.
- Appropriations made by the general assembly.
- Gifts and donations intended for deposit in the fund. (A gift or donation deposited in the fund under this subdivision would have been specified to be entirely for the use of IDEM or IDOC before 1999.)
- Civil penalties collected under IC 13-30-4. All money deposited in the fund from civil penalties may be used by IDEM for waste tire removal and remediation projects.

### The Roles of the Indiana Departments of Commerce and Environmental Management

#### *IDOC*

The Indiana Department of Commerce – Energy and Recycling Office’s Recycling Market Development Program works with Indiana companies to reduce disposal of non-hazardous waste and increase the use of and demand for recyclable materials, offering loans and grants for equipment, research and marketing. A grant is also available to local government entities for the purchase of recycled-content products. IDOC also offers technical assistance related to recycling market development, including a database of markets for recyclables and a list of Indiana recycled-content product vendors. Visit [www.CommerceRecycles.IN.gov](http://www.CommerceRecycles.IN.gov) for more information.

The Indiana Recycling and Energy Development Board makes funding approval for loans and grants quarterly as established by IC 4-23-5.5-14. An internal review team evaluates the projects. Projects awarded funding are monitored through site visits and progress reports.

Until 1999, IDOC was entitled to 65 percent of the Waste Tire Management Fund according to statute. Using these funds, IDOC operated several grant programs to promote market development for recycled scrap tires. These programs were phased out by 2002, after the legislature clarified that all WTMTF monies should be used by IDEM for tire cleanup and recycling projects. IDOC can fund scrap tire recycling market development projects through its Recycling Promotion and Assistance Fund loan and grant programs,

but these programs are not limited to tire recycling projects. This fund does not receive revenue from the WTMF.

### *IDEM*

Two divisions within IDEM administer programs with monies from the WTMF: the Office of Land Quality (OLQ) and the Office of Pollution Prevention and Technical Assistance (OPPTA).

### OLQ

The Office of Land Quality uses the WTMF to remediate waste tire sites. OLQ maintains master agreements with contractors who provide general waste tire cleanup. When a large site is uncovered, contractors with a master agreement may bid for the cleanup of the site. The contractor with the winning bid is given a specific contract for cleanup of the specific site. IDEM, through inspection and receipt of complaints, identifies known waste tire cleanup sites. In some cases, waste tires and hazardous waste may both be involved. In these cases, the site cleanup may draw from several different funds with the cost for each type of waste cleanup apportioned among the funds. IDEM has approved shredded tires as alternative daily cover for landfills. Although this is not considered reuse of the materials, according to IDEM, the regulation provides an outlet for safe, inexpensive tire cleanup.

### OPPTA

OPPTA has only recently become involved with providing grants through the WTMF since IDEM, IDOC, and the Indiana State Budget Agency have agreed that IDEM should administer all funds in the WTMF. As a result, OPPTA funded the first round of Scrap Tire Grants in 2003. The new Scrap Tire Grants were available in four categories:

- Recycled Product Procurement;
- Civil Engineering Field Reuse;
- Recreational Field Reuse; and
- Research and Development.

The grants were available to businesses, schools, local units, and nonprofits, and grant funds could be used to reimburse 50 percent of approved invoiced expenses. Five grants totaling \$90,000 were awarded for recreational field projects.

### Status of the Fund

The goal of the Waste Tire Management Fund is to provide for tire cleanup and to stimulate reuse of tires. Figure 2 below (regarding revenue and expenditure data taken from the Indiana State Auditor's account) shows that from fiscal year 1996 to fiscal year 2001, an average of 11 percent of the revenues received was awarded as grants and 29 percent was used for cleanup projects.

**Figure 2. Revenues and Expenditures of the WTMF**

Fiscal Year	Fee Revenue	IDOC (Grants)	IDEM (Cleanups)	(Grants)
1994	\$869,249	0	0	0
1995	1,304,130	0	0	0
1996	1,266,661	\$100,000	\$600,303	0
1997	1,333,185	108,686	75,995	0
1998	1,253,621	233,722	140,664	0
1999	1,963,766	278,851	156,536	0
2000	3,203,568	110,442	1,195,485	0
2001	911,779	96,266	580,494	0
2002	613,831	0	1,424,056	\$90,000
<b>Totals</b>	<b>\$12,719,790</b>	<b>\$927,967</b>	<b>\$4,173,533</b>	<b>\$90,000</b>

(Note: Variations in Waste Tire Management Fee revenue have been attributed to taxpayer errors on the tax form. The Indiana Department of Revenue reports changing the form in an attempt to improve reporting.)<sup>4</sup>

Costs of IDEM cleanups for specific tire sites from the WTMF are shown in Figure 3:

**Figure 3. Tire Fund Cleanup Costs per Site Since 1999**

Year(s)	Site	City	County	Tons	Passenger Tire Equivalents	Estimated Cost/PTE	Total Cost
1999	Crites Tire Site	Freedom	Owen	263	21,040	\$ 2.00	\$42,054
1999	Riverside Tire Site	Brooklyn	Morgan	141	11,280	\$1.75	\$19,725
1999	Spencer Tire Site	Scottsburg	Scott	600	48,000	\$1.63	\$78,048
2000	Smith Tire Site	Roachdale	Putnam	1,025	82,000	\$1.25	\$102,437
2000	McVey Site	Terre Haute	Vigo	983	78,640	\$1.87	\$147,437
2000	Wullenwebber Site	Guilford	Dearborn	7,568	605,440	\$1.43	\$862,764
2000	Faye Harvey Tire Site	Michigan City	LaPorte	144	11,520	\$1.05	\$12,050
2000	Patrick Clark Tire Site	Etna	Kosciusko/Whitley	861	68,880	\$1.15	\$79,471
2000	Mifco	Portland	Jay	660	52,800	\$1.17	\$61,799
2000	Bunker Hill	Bunker Hill	Miami	455	36,400	\$ .90	\$32,748
2000	House's Junkyard	Gary	Lake	269	21,520	\$2.44	\$52,500
2000	Osborne Tire Site	Loogootee	Daviess	1,614	129,120	\$.83	\$106,908
2000	Wolf Industries Site	Brazil	Clay	276	22,080	\$1.18	\$26,087
2000-2003	G & M Tire Site	Atwood	Kosciusko	47,319	3,785,520	\$.94	\$3,548,906
2001	Toni Taylor Tire Site	Springville	Monroe	243	19,440	\$1.16	\$22,582
2002	Chicken Coop	Warsaw	Kosciusko	715	57,200	\$.59	\$33,585

<sup>4</sup> Source: Indiana Legislative Services Agency's study on Indiana's solid waste management and recycling: [www.in.gov/legislative/interim/committee/rcec.html](http://www.in.gov/legislative/interim/committee/rcec.html). Monetary figures are based on Indiana Auditor of State records.

	Tire Site						
2002	Schwanke Tire Project	Wheatfield	Jasper	76	6,080	\$ .91	\$5,544
2002	Starke County Garage	Knox	Starke	74	5,920	\$1.06	\$6,249
2002	9th Avenue Dump	Gary	Lake	344	27,520	\$1.25	\$34,361
2002	Davenport Dump	Monrovia	Morgan	302	24,160	\$ .79	\$19,201
2003	Cheesey Tire Site	Farmersburg	Sullivan	75	6,000	\$2.11	\$12,656
2003	Joe Redd Tire Site	Brownsville	Union	97	7,760	\$2.31	\$17,953
2003	McIntosh	Williamsport	Warren	211	16,880	\$2.87	\$48,523
<b>Totals</b>				<b>64,315</b>	<b>5,145,200</b>	<b>\$32.64</b>	<b>\$5,373,588</b>

The cost per tire range for cleaning up abandoned tire piles is from a high of \$2.87 to a low of 59 cents. The estimated average cost per tire using a passenger tire weighing 25 pounds as one tire unit is \$1.42.

## IV. Waste Tire Management Programs

For effective waste tire management, the Waste Tire Task Force recommended a twofold approach toward the problem. One approach included monetary assistance for proactive initiatives to research markets for recycling and reuse of waste tires. The second approach was the overall management of the problem at hand, including allotting monies for the cleanup of improperly disposed of tires. IDOC offers grants and loans for equipment, research and marketing to reduce the number of waste tires in the state, while at the same time increasing demand for tire recycling feasibility. IDEM has recently joined IDOC in awarding grants, but the management of waste tires also includes successful cleanups. This section reviews both marketing and compliance issues.

### Grants and Loans

#### *Indiana Department of Commerce Programs*

The Indiana Department of Commerce – Energy and Recycling Office’s Recycling Market Development Program can fund scrap tire recycling market development projects through its Recycling Promotion and Assistance Fund grants and loans. While these programs are not limited to tire recycling projects, scrap tires are considered a priority recyclable. Projects involving priority recyclables take precedence when evaluating funding projects. All projects undergo extensive review and must be approved by the Recycling and Energy Development Board. Project managers are required to submit quarterly, annual and final reports and are subject to yearly monitoring visits.

*(Note: Other IDOC Energy and Recycling Office programs may be applicable for projects that use scrap tire material as fuel.)*

#### Recycling Market Development Fund Programs:

- Grants:

#### Three R’s Assessment Grant

These grants assist manufacturing and commercial sectors to hire consultants to investigate ways to reduce their waste streams through source reduction, recycling, reuse and/or use of recycled-content products or feedstocks.

-Eligible Applicants: Manufacturing and commercial businesses.

-Funding Available: Up to \$6,000, not to exceed 50 percent of eligible project costs.

-Example of Three R’s Assessment Grant project: Manufacturing company hires a consultant to assess whether it could use scrap tire material as a feedstock in its process.

#### Innovations Grant

These grants assist Indiana businesses to undertake research, development, and implementation projects that promote the economical use of secondary recycled materials or provide source reduction in manufacturing processes. Projects must address innovative research and development or demonstration toward near-term commercialization.

Eligible projects include pilot plants, plant demonstrations, or field demonstrations of products in new market application.

-Eligible Applicants: Manufacturing and commercial businesses.

-Funding Available: Up to \$100,000, not to exceed 50 percent of eligible project costs.

-Example of Innovations Grant project: Recycling company, in partnership with other state and local agencies, investigates use of recycled scrap tire chips in septic systems.

#### Recycled Product Marketing Grant

These grants help Indiana businesses making recycled-content products to more successfully move these products into the marketplace. An eligible project includes development or implementation of a marketing plan. Successful marketing of recycled-content products supports Indiana's recycling manufacturers, thereby strengthening local markets for collected recyclables.

-Eligible Applicants: Small Indiana businesses (less than 100 employees) that manufacture a recycled-content product.

-Funding Available: Up to \$30,000, not to exceed 50 percent of eligible project costs.

-Example of Recycled Product Marketing Grant project: Manufacturer of recycled rubber products from scrap tires receives funding to develop sales Web sites and brochures for these products.

#### Recycled Product Purchasing Grant

These grants stimulate the markets for recycled-content products by encouraging local government entities to purchase recycled-content products as a trial or demonstration. This funding encourages public education about projects and potential long-term purchasing of recycled-content products.

-Eligible Applicants: Local government entities.

-Funding Available: Up to \$5,000, not to exceed 50 percent of eligible project costs.

-Example of Recycled Product Purchasing Grant project: Local parks department purchases mats made from recycled scrap tire material.

#### • Loans:

##### Recycling Promotion and Assistance Fund Loan Program

This program offers zero-percent interest loans for the purchase of equipment to manufacture a recycled-content product or prepare material for use as an industrial feedstock.

-Eligible Applicants: Indiana businesses.

-Funding Available: The maximum loan available per applicant is \$500,000, not to exceed 50 percent of eligible project costs. The loan is paid back over seven years.

-Example of RPAF Loan project: Manufacturing company uses recycled scrap tire material to produce new products for automobile industry.

##### \$1 Million RPAF Attraction Loan

This program offers zero-percent interest loans for the purchase of equipment to manufacture a recycled-content product or prepare material for use as an industrial feedstock.

-Eligible Applicants: Successful, expanding recycling companies building markets for priority recyclable materials. Priority materials include but are not limited to: plastics, mixed glass, construction and demolition debris, coal combustion materials, tires and foundry sand.

-Funding Available: The maximum loan available per applicant is \$1 million, not to exceed 50 percent of eligible project costs. The loan is paid back over seven years.

-Example of \$1 million RPAF Attraction Loan project: Out-of-state company receives equipment funding to relocate to Indiana its manufacturing operations, which utilize crumb rubber in the manufacturing process. Figure 4 shows the history of the RPAF Tire Projects.

**Figure 4. IDOC's RPAF Rubber Recycling Projects from 1993-2002**

Fiscal Year	Company	Loan Amount	Materials	Tons Diverted
1993-94	CR3 of Indiana	\$500,000	Tires	17,500
1994-95	Custom Form Manufacturing	\$500,000	Crumb rubber	10,000
1995-96	Envirotech Extrusions	\$479,000	Rubber, plastic	4,000
1996-97	GDC Inc.	\$163,325	Rubber, plastic	1,342
1996-97	Cidone Industries LLC.	\$250,000	Crumb rubber	4,176
2000-01	GE Plastic and Rubber Group	\$323,000	Rubber, plastic	6,500
2000-01	Envirotech Extrusions	\$563,000	Rubber, plastic	2,100
2001-02	GDC Inc.	\$455,833	Rubber, plastic	460
2001-02	Dekalb Molded Plastic	\$475,000	Rubber, plastic	1,225
<b>Totals</b>	<b>10 loans</b>	<b>\$3,709,158</b>		<b>47,303</b>

#### *Indiana Department of Environmental Management Programs*

- Grants

##### Scrap Tire Grants

IDEM's Office of Pollution Prevention and Technical Assistance announced its first round of Scrap Tire Grants in 2002. Copies of the grant announcement, guidelines and application for funding are included as Appendix 3. The grants were available to businesses, schools, not-for-profits, and local units of government to use scrap tires acquired in Indiana for projects in the following categories:

-Recycled Product Procurement involves utilizing a reuse or remanufacture of scrap tires or crumb rubber from scrap tires in highway supplies or consumer products, such as mud flaps and truck bed liners.

-Civil Engineering Field Reuse involves using scrap tires as part of an IDEM-approved civil engineering beneficial reuse project, including roadway or surface lot drainage bases, residential on-site waste water septic field drainage systems, and embankment or bridge abutments.

-Recreational Field Reuse involves using scrap tires as part of an IDEM-approved recreational beneficial reuse project, including sports tracks, hiking/biking trails, and marine or boat docks.

-Research and Development involves exploring the use of scrap tire material in a high-value added product and finding markets for that product.

Grants were offered as a 50 percent reimbursement for project expenses incurred by the grantee. A total of \$90,000 was awarded for this round in 2003 to five grantees to implement six athletic field crumb rubber application projects. (See "OPPTA's Recycled Tire Project.")

### Beneficial Reuse

Under 329 IAC 10-3-1(13), solid waste management regulations provide a means for IDEM to allow, by prior written approval, beneficial uses of waste tires.

This approval may be given when an applicant shows that the use of this material provides a

real benefit and is not a means to avoid proper disposal, and does not pose a threat to human health or the environment. Several tire products have been in common use for the

### **OPPTA's Recycled Tire Project**

An innovative improvement project is now underway on Indiana athletic fields. Five Indiana schools, the state of Indiana and the Ford Motor Company have initiated a special project that will enhance the turf. With land for athletic fields at a premium, extending the life of existing surfaces with this initiative is strategic for school districts and park districts in the state.

IDEM recycling staff observed this project first hand at the Main Street Athletic Field in Beech Grove. In areas of the field, stress from intense action in the goal box of a high school soccer field left the ground worn. To fix this problem, crumb rubber was applied with specialized equipment through three to five applications. Benefits of the recycled rubber application includes:

- Creating a cushion between the grass and soil, protecting the crown of the grass;
- Reducing turf wear;
- Lessening soil compaction;
- Improving traction in all weather conditions;
- Enhancing moisture absorption and retention, reducing the amount of watering required;
- Strengthening the root structure; and
- Providing a cushioned surface for the student athlete.

The process is closely monitored for an even application. The operators use markers to ensure a uniform layer of material over the entire field. Two application vehicles are used and one soccer field application can be completed in two to three hours. The velocity at which the equipment disperses the rubber forces it down into the turf.

An eighth to a quarter inch layer of crumb rubber is placed over the entire site, with the contractor incorporating the rubber into the soil. This provides the protection that the grass needs to endure the stress of a sport season. The rubber is most noticeable in areas without vegetation. If the intensive revegetation efforts by the field maintenance crew are successful, the grass will grow through the rubber and benefit from its protective properties.

Five Indiana schools are participating in this pilot project to rubberize their athletic turf:

- 1) Beech Grove High School;
- 2) Ben Davis High School;
- 3) Decatur Central School;
- 4) Lake Central High School; and
- 5) Taylor University.

As this program expands, Indiana scrap tires will be recycled and applied on all types of athletic fields and high traffic grass areas. Recycled crumb rubber use is growing. Other application areas include asphalt, playground materials, animal mats and artificial turf.



last 5 to 10 years and are now accepted as legitimate products processed from waste tires. Such products include crumb rubber, playground cover, and one inch to two inch chips utilized as a fuel in permitted boilers (known as TDF—tired derived fuel). Two inch chips also are being used as a lightweight construction material in roadway sub base layers. By demonstrating these beneficial uses of tire chips and standard-sized shreds, more markets could open in other construction applications.

OPPTA has also offered technical assistance outreach such as the 2001 technical course on civil engineering applications of tire shreds. The six-hour course covered the use of tire shreds as lightweight fill for embankments on weak compressible soils; landslide stabilization and retaining wall backfill; compressible fill for rigid frame and integral abutment bridges; and drainage aggregate for highway applications. IDEM, IDOC, and the Scrap Tire Management Council sponsored the course.

The major problem currently facing IDEM and IDOC is to develop strong markets now. Without a demand there is no end use; demand will only come when the value of the material is demonstrated.

#### What Other States are Doing

Neighboring states have developed regulations specifying acceptable beneficial reuse projects for tires. For example, the Ohio Environmental Protection Agency lists the following uses and number of tires as acceptable:

- Agricultural and landfill uses to hold down tarps and covers (up to 250 tires);
- Crash barriers around race tracks (up to 1,500 tires); and
- Backstops for rifle ranges (up to 1,500 tires).

Ohio EPA also stipulates that tire shreds and chips may be used in civil engineering projects such as:

- Solid waste landfill leachate collection systems;
- On-site residential septic system leachate fields;
- Drainage around building foundation insulation;
- Covering material for playgrounds; and
- Construction of public roadways.

A complete listing of surrounding state markets for scrap tires follows in Appendix 4.

#### Cleanups

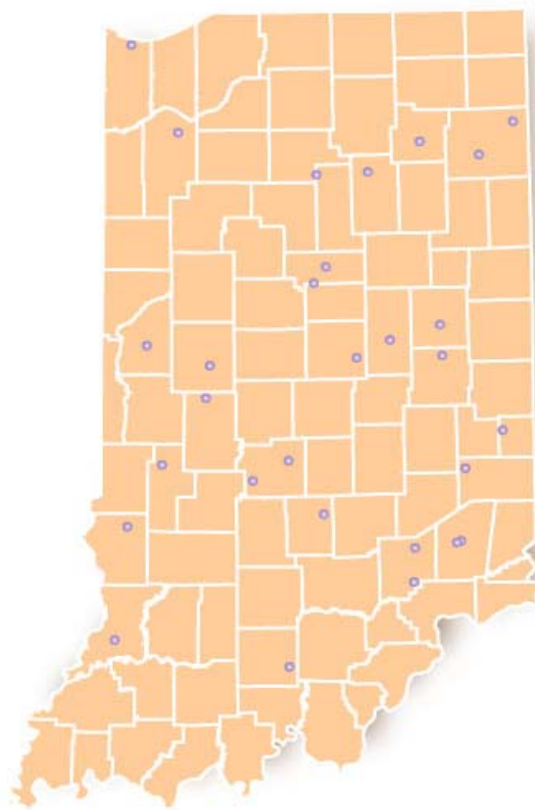
During the last five years, IDEM cleaned up more than 5 million illegally disposed tires. IDEM has identified more than 5 million waste tires remaining in illegal dumps and 6.5 million still waiting to be processed. This number may increase as additional illegal dumps are discovered.

IDEM has created a prioritized list of 29 illegal tire dumps in Indiana to be cleaned up (see Figure 5). The bulk of IDEM's cleanup efforts have been paid from the Waste Tire

**Figure 5.** Twenty-nine waste tire sites are listed for prioritized cleanup in Indiana.

County	Number of sites
Allen	2
Brown	1
Clay	1
Delaware	1
Fountain	1
Franklin	1
Hamilton	1
Henry	1
Howard	2
Jasper	1
Jennings	2
Knox	1
Lake	1
Madison	1
Miami	1
Montgomery	1
Morgan	2
Orange	1
Putnam	1
Ripley	2
Sullivan	1
Union	1
Wabash	1
Whitley	1

**Waste Tire Sites**



Fund, which the Indiana legislature created in 1992. The law requires that 25 cents from the sale of every new tire in the state be deposited in the fund. Cleanup of additional sites using the state fund is planned for 2003-04.

### *Illegal Waste Tire Dump Cleanups*

One of the state's largest remaining tire dump cleanups was completed in November 2002. An estimated 47,000 tons of waste tires were removed from the illegal waste tire dump - the former G & M Recycling site located outside of Atwood in Kosciusko County - making the area cleaner and safer for area residents.

After the initial investigation, IDEM issued a letter of warning to the property's owner. When the owner was unable to meet a cleanup schedule as agreed, IDEM assumed responsibility for cleanup under the agency's waste tire cleanup program.

Since January 2000, IDEM has overseen cleanup at the eight-acre site located 2.5 miles west of Atwood on County Road 200 W. Through completion, the equivalent of more than 3.7 million passenger tires were removed from the property. The tires were shredded and used as daily cover at a municipal landfill.

The site posed a significant health and environmental threat to the area and its residents. The tires provided an optimal breeding ground for mosquitoes and a habitat for pests. If the mass of tires had caught on fire, residential wells and ground water would have been threatened by the polluted run-off, and evacuation of homes downwind would have been likely.

Another noteworthy cleanup involved the cooperation of IDEM with the federal government. Work had started in 2001 at the Davenport Dump tire site in Monrovia, Morgan County. Midway through, drums of hazardous materials were discovered buried beneath the tires. Work was stopped and the site was turned over to U.S. EPA. When U.S. EPA completed its investigation and cleanup, IDEM was then able to complete the removal in 2002 and dispose of the remaining tires—about 24,160. Total contractual cost for the cleanup was \$19,201.

Additional site cleanups completed around the state include: Chicken Coop Tire Site in Kosciusko County, Starke County Garage Tire Pile in Starke County, 9th Avenue Dump in Lake County, Schwanke Tire Project in Jasper County, and the Toni Taylor Site in Springville, Morgan County. Overall, an estimated 1,216,000 tires or 15,200 tons of waste tires and shreds were removed in 2002.

### **IDEM's Tire Cleanups Help Thwart West Nile Virus**

This summer, each day seemed to bring new announcements of West Nile virus cases. But through IDEM's illegal waste tire dump cleanups and its waste tire management rule, IDEM has kept the mosquito population down and protected Hoosiers from mosquito-borne illness. State health officials warn that thousands of *Culex* mosquitoes, which carry the West Nile virus, can breed in the stagnant water found in just one tire.

Under the waste tire management rule, waste tire processors must submit a contingency plan to IDEM describing, among other things, the actions the processor will take to prevent mosquito breeding in water that may accumulate in waste tires. Operators are required to drain water from tires on the day they are received and process the tires within seven days to prevent water from collecting. This reduces the threat of mosquitoes spreading disease in the community.

IDEM's work in eliminating waste tires, along with the threat they pose as a mosquito habitat, is just one way the agency continues its commitment to protecting Indiana's environment. The next section deals with IDEM's responsibilities for protecting Indiana citizens and the environment on an everyday basis, regardless of cleanup grants. A goal of the agency is to increase compliance awareness for tire retailers, processors, transporters and storage facility operators. To understand this, Chapter V reviews the regulatory guidelines for handling waste tires.

## **V. Registration of Waste Tire Transporters, Processors and Storage Sites**

### General Guidelines

329 IAC 15 provides standards for waste tire transporting, processing (to include cutting, shredding or grinding of waste tires), storage and disposal.

Individuals wishing to conduct business in waste tire management must first obtain a certificate of registration from IDEM's Office of Land Quality for each regulated activity. All registrations are valid for five years. The rule is intended to prevent large accumulations of waste tires and to track the movement of tires from the generator to the final end use or disposal facility.

Restrictions on storage accumulations limit generators, haulers, and processors to less than 1,000 waste tires stored outdoor or 2,000 stored indoor. These numbers are reported by the company in "PTEs" or passenger tire equivalents, which equal 25 pounds per tire. Large truck or tractor tires of 100 pounds are given a value of 4 PTEs each. Operations which find it necessary to maintain more waste tires than these limits are required to obtain a storage site registration.

In addition to following rules from the State Fire Marshall on tire pile size limits and fire prevention measures, processing and storage site managers must identify emergency contacts and procedures in their site contingency plans.

Copies of the registration forms for transporters, processors and storage facilities, as well as annual report and manifest forms may be found in Appendix 5.

### Waste Tire Generators

Waste tire generators include car retailers, used car dealers, retreaders and salvage operations. In Indiana, the number of tire retailers is estimated to be 1,000 by the Indiana Tire Dealers and Retreaders Association. Currently, 250 generators are officially registered with the association. The association supports retailers in better management of the state's waste tires.

Although they are not required to register with IDEM, IC 13-20-14, sets certain guidelines for generators. First, they must accept the same number of waste tires replaced by new tires purchased at their establishment by a consumer. Second, a source of waste tires must dispose of these tires at a registered facility authorized to handle the waste tires. Third, anyone who is the source of 12 or more tires per year is required to maintain an annual record of waste tire manifests provided by a registered waste tire transporter. Generators must keep these records on site for one year to show that they are properly managing waste tires through a registered transporter.

### Waste Tire Transporters

In order to ensure all waste tires handled are managed properly, 329 IAC 15 was amended in 1999 to include provisions that a waste tire transporter shall maintain financial assurance in the amount of \$10,000. With those rule revisions, the number of tire transporters dropped from 250 recorded in 1999 to 89 recorded in 2003.

The application fee to register a waste tire transporter is \$25. The annual operating fee is also \$25. Forms for financial assurance are available through IDEM's solid waste permitting section, along with a listing of environmental bonding companies and banks that have notified IDEM they provide financial assurance services in a particular area. Also, 329 IAC 15-4-14 requires annual reporting of the number of waste tires handled.

A list of transporters currently registered with IDEM appears in Appendix 5.

### Waste Tire Processors

There are 30 waste tire processors currently registered in Indiana. The application fee to register a waste tire processing facility is \$200. There is no annual fee for waste tire processing facilities. 329 IAC 15-3 calls for annual reporting of the number of tires handled, manifest files maintained, and development of a facility contingency plan for dealing with emergencies. This chapter also requires processing operations to drain water from tires on the day they are received and process them within seven days to prevent water collecting and the threat of mosquitoes spreading disease.

For mobile processing operations, a facility plan must include how the same information listed above will be addressed at the base facility and at other locations where tires are staged prior to, during, and after the waste tires are processed.

A facility must identify the person(s) on-site or on call who is responsible to coordinate the emergency actions in the contingency plan. All information in this plan must be maintained current, both at the site and in the record maintained as public information by IDEM.

Manifest records must be completely filled out and copies maintained on file as proof of proper reuse or disposal. They must be available for inspection for at least one year.

### Waste Tire Storage Sites

Only two waste tire storage sites are currently registered for the state of Indiana. The application fee to register a waste tire storage facility is \$500. The annual operating fee is also \$500. Storage sites are required to register waste tire storage beyond the outside accumulation of 1,000 or more scrap tires, and must include inside accumulations of 2,000 or more waste tires. Enclosed storage for less than 30 days may be exempt as may storage in an Indiana Department of Transportation-approved fully enclosed trailer licensed to travel on the highway.

A list of processing and storage facilities may be found in Appendix 5.

## **VI. Regional Markets for Processed Tires**

### Current Markets for Scrap Tires in Indiana

*Landfill Cover and Disposal:* The most common end use for scrap tires in Indiana is landfill alternative daily cover. Many more scrap tires are cut into pieces and disposed in Indiana landfills.

*Civil Engineering Applications:* Civil engineering applications include using tire pieces ranging in size from 2 inches to 12 inches as a construction base for roadways, surface lots, and drainage lines. These applications provide the second largest market for scrap tires in the United States, consuming 14.2 percent of processed scrap tire material. Although it has not been aggressively pursued, this market has the greatest potential for growth in Indiana. Tire chips are beneficial, lightweight fill that can be produced by many of the large tire processors in the state. Civil engineering projects also have the potential to use large numbers of tires. This potential market for scrap tire material exists everywhere road construction or maintenance is being performed, as long as the distance from a tire processing facility is reasonable. Civil engineering applications are already in use in the states surrounding Indiana.

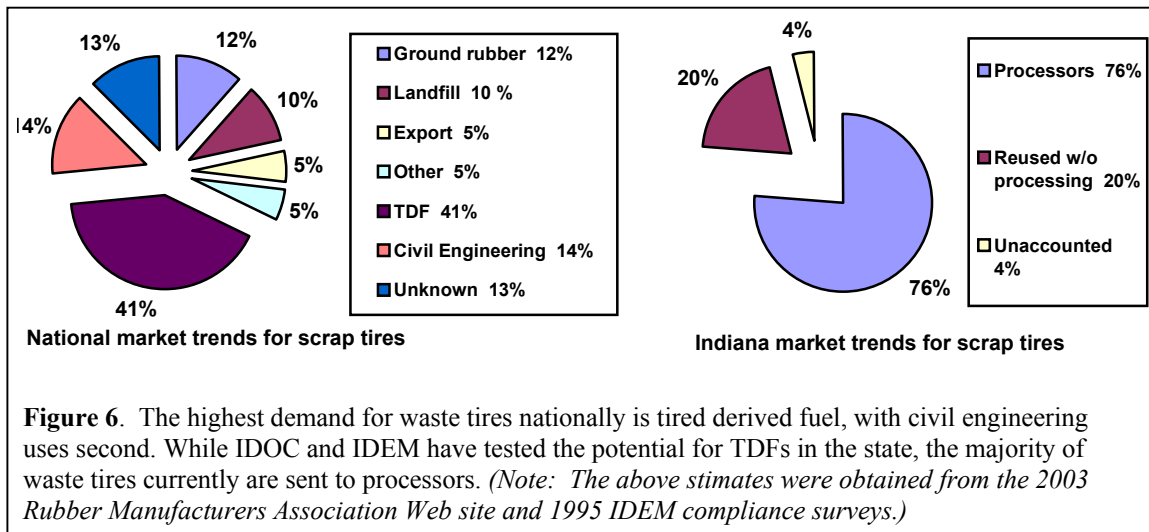
*Rubberized Asphalt:* The Intermodal Surface Transportation Efficiency Act of 1991 required states to use an increasing percentage of rubberized asphalt in order to receive federal highway funds. However, this portion of ISTEA was repealed in 1995 and further progress has not been made in Indiana.

*Tire Derived Fuel (TDF):* TDF is a major market in several surrounding states (and the largest national market for scrap tires at 40.9 percent). TDF has been pursued as a scrap tire market in Indiana. Commerce administered the scrap tire grants and funding was available for test burning of TDF. Several test burns have produced encouraging results, but currently projects are not being implemented due to the complexity and costs to the technical modifications of permits.

*Ground Rubber:* Nationally, ground rubber applications account for 11.7 percent of tires sent to a market annually. Playground and athletic field applications have been the most popular uses of ground rubber from scrap tires. The first round of Scrap Tire Grants issued by OPPTA in 2003 went exclusively to athletic field applications. With the loss of the CR3 tire recycling facility in Muncie, Indiana has no in-state crumb rubber supplier.

*Landscaping uses:* Landscaping applications for scrap tire material is a small but growing market for Indiana tires. One company in Indiana is producing colored tire mulch and other landscape products.

Figure 6 illustrates the current national and local markets for scrap tires. According to a 1995 survey of waste tire processing facilities, the majority of Indiana scrap tires are collected for processing, and less than 25 percent of these tires are either reused or unaccounted for.



### Regional Tire Programs and Markets

Scrap tire programs across the nation vary greatly. Some programs collect a per tire fee as low as 25 cents where others collect a fee as high as \$2.50. In general, 34 states have a per tire fee. Many states differentiate between car tires and truck tires. For example, Arkansas charges \$2 per passenger tire, but \$4 per truck tire. Five states have an alternate tire fee tied in with vehicle registration and or vehicle title, with Iowa and West Virginia charging the highest fees - \$5 for titles. Indiana's neighboring states charge the following: Michigan -- 50 cents per tire on vehicle title; Ohio -- \$1 per tire; Kentucky -- \$1 per tire; Wisconsin -- \$2 vehicle title; and Illinois -- \$2.50 per tire. For a specific breakdown of tire fees and regulations, see Appendix 4.

### U.S. EPA

The federal government has information on product stewardship regarding waste tires. In short, they list the latest product development, resources, and international, federal, regional, local and industry initiatives. For more information, visit the U.S. EPA's Web site at: [www.epa.gov/epr/products/tindust.html](http://www.epa.gov/epr/products/tindust.html).

### **New Industry/New Neighbor**

Developing new tire recycling plants is expensive and often not welcomed in neighborhoods. For example, in Crown Point, the Lake County Council recently approved a tire recycling plant south of Lowell. Northern Indiana Material Corp. will shred tires and mix them with limestone to provide bases for roads and parking lots. The challenge for the new plant will be to work with the community fire department and IDEM to prove to residents in the area that it can be a "good neighbor" industry. The county mandated that the facility have a dust plan and run operations only from 6 a.m. to 6 p.m. The plant will process up to 30,000 tires a week.

Source: NWITimes.com; 8/13/03.

## **VII. Challenges for the Future**

Since 1992, there have been significant improvements to Indiana's management of waste tires. A regulatory structure through statute and rule has been put in place for the state's waste tire transporters and processors. A 25 cents per new tire purchased fee has generated revenue for waste tire cleanups and market development activities.

Indiana also has been successful in remediating many scrap tire dumps and abandoned scrap tire piles. More than 5.1 million tires were cleaned up from 1999 through 2003. The IDEM estimates that more than 6.5 million scrap tires are currently stockpiled at licensed processing facilities, waiting for an end use. However, that number does not include the 5 million to 7 million tires in scrap tire dumps and abandoned stockpiles that have not yet been remediated.

Indiana does not have enough recycling capacity or reuse markets to address the waste tire materials that are being generated annually. IDEM's recent evaluation of the state's 32 waste tire processors indicates significant concerns with illegal storage of large volumes of waste tires and shredded tires. The agency has begun the necessary steps to address illegally managed waste tire materials at several locations. It is not clear how increased compliance activities at regulated tire processing facilities will ultimately affect the market for waste tires.

### Evaluating Statutory and Program Issues

IDEM's goals of increasing markets for waste tires, increasing compliance and enforcement efforts, cleaning up current illegal sites, and providing proactive compliance outreach to the waste tire industry should assist in addressing the problem of waste tires in Indiana. However, these efforts may not be enough and increased funding for market development, compliance activities, and tire cleanups may ultimately be necessary. This coming year, IDEM will continue to evaluate any needed changes of the existing approaches, authorities, and efforts to properly manage waste tires in Indiana.

IDEM has identified a number of issues with respect to statutory authority and management of waste tire programs that should be evaluated during the next year and beyond to determine if changes may be helpful to effectively manage the state's waste tires:

- IC 13-20-13-8 is not clear on how funding from collected waste tire fees should be directed. The program would be more easily implemented if the statute were revised to reflect that 100 percent of the Waste Tire Management Fund is provided to IDEM to remediate and complete cleanups, provide grants and loans, and implement the compliance program. The statute currently contains conflicting language and makes references to 65 percent of the fund being utilized by IDOC, while also stating that IDEM may utilize all monies for waste tire projects.



- The definition of “waste tire” in IC 13-11-2-250 does not adequately reflect the issues that IDEM has identified during compliance inspections at illegal waste tire piles. The statute does not include references to those by-products resulting from the processing of waste tires, such as altered tires or tire shreds.
- Waste tires and their by-products continue to remain a threat to human health and property, if they are improperly stored under cover. The current legal framework neither addresses restrictions of stockpiled waste tires within buildings and/or trailers nor IDEM's ability to address these conditions through the tire processor registration program.
- IC 13-20-13-11(b)(3) has no financial assurance requirements for waste tire processors.
- Through compliance efforts, IDEM has identified waste tire processors that have become a threat to human health and the environment. Currently, the legal framework does not allow IDEM to proactively remediate when these conditions exist, and there are no cost recovery mechanisms for these activities.

#### Continuing Focus on Waste Tires

- IDOC will continue to work with IDEM and local governments to encourage the purchase of products made from recycled scrap tires as well as the use of scrap tires in civil engineering projects.
- IDEM will continue to work with the Indiana Department of Transportation to promote additional testing for transportation engineering applications and establishment of standards supporting the use of tire materials in local road projects. INDOT also will work on special provisions allowing the use of tire chips in lightweight fill base in embankments.
- IDEM will continue working with the Indiana Department of Health and will work more effectively with county health departments to fight increasing tire piles which are perfect breeding locations for mosquitoes.
- IDEM, ISDH, and IDOC will continue work on pilot projects for engineering application in septic leach fields.
- IDEM will report tire stock piles to the State Fire Marshal’s Office, working with that office on compliance and enforcement issues regarding illegal tire dumps and stock piles.

#### Working Closely with Business and the Public Sector

- IDOC will continue to work with businesses and IDEM to encourage the development of viable end markets for scrap tires. The state will commit to explore

beneficial reuse opportunities that utilize the maximum amount of Indiana tires. The largest national use for waste tires is tire derived fuel. It is estimated that Indiana cement kilns, for example, could use 1 million to 3 million tires annually.

- IDEM will increase outreach efforts to tire processors, transporters and storage site operators to educate them on compliance issues.
- IDEM will work to create more grants for schools to develop playground, gym floor and athletic field applications.
- IDEM will work to offer universities research grants to develop technical data reports on various engineering applications.

#### Conclusion

The waste tire management system in Indiana can benefit from broader-based market development, as well as support for cleanups and enforcement authority. Together with other state agencies, lawmakers, industry and the public, the Indiana Department of Environmental Management will work to reduce the number of waste tire dumps and illegal tire stockpiles, making the state a cleaner and healthier place to live.